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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/002,109	12/05/2001	Masayuki Tsubaki	330-242	3047

7590 02/13/2004

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EXAMINER

EASHOO, MARK

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/002,109	TSUBAKI ET AL.	
	Examiner	Art Unit	
	Mark Eashoo, Ph.D.	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/034,139.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12-01</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/034,139, filed on 22-FEB-1998.

Information Disclosure Statement

The information disclosure statement filed 05-DEC-2001 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. Accordingly, it has been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20, 21, 24-26, and 29 are rejected under 35 USC 102(b) as being anticipated by Dunk (US Pat. 5,290,672).

Regarding claim 20: Dunk teaches the claimed process of producing a resin-coated-paper support having three resin layers thereon, comprising the steps of: coating a lowermost layer or mono-layer on the base paper by melt extrusion (example 2); and subsequently co-extruding an intermediate and top layer (ie. EVA and PC layers)(example 2).

Regarding claim 21: Dunk teaches three layers, with a LDPE layer below both EVA and PC layers (example 2) (see also 3:53-4:4:66). Dunk further teaches that LDPE has a density range of 0.910 to 0.940 g/cm³ (3:14-20).

Regarding claim 24: Dunk teaches three layers, a LDPE layer, an EVA layer, and PC layers (example 2).

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Regarding claim 25: Dunk teaches upper layers having thin thickness or low weight per square meter in relation to the lowermost layer of LLDPE (See Table I) which is generally 90% or more of the entire coating thickness. Dunk further teaches that LDPE has a density range of 0.910 to 0.940 g/cm³ (3:14-20).

Regarding claim 26: Dunk teaches upper or second layer materials comprising HDPE (3:40-52 and Table I, sample 2). Dunk further teaches that HDPE has a density greater than 0.940 g/cm³ (3:14-20).

Regarding claim 29: Dunk teaches coating the paper surface opposite of the multi-layer structure (ie. the wire side) with polyethylene, namely a blend of HDPE and LDPE (example 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 20, 21, and 24-29 are rejected under 35 USC 103(a) as being unpatentable over Dunk (US Pat. 5,290,672) in view of Ashida et al. (US Pat. 5,824,462).

The following rejection of claims 20, 21, 24-26, and 29 is an alternative rejection, wherein the preamble phrase "a base paper of made of natural pulp" is given substantial weight.

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Regarding claim 20: Dunk teaches the claimed process of producing a resin-coated-paper support having three resin layers thereon, comprising the steps of: coating a lowermost layer or mono-layer on the base paper by melt extrusion (example 2); and subsequently co-extruding an intermediate and top layer (ie. EVA and PC layers)(example 2).

Dunk is silent with respect to the composition of the base paper, other than it be of high quality (1:14-15). Ashida et al. teaches that high quality base paper is made from natural fibers/pulp (18:14-19:10). Ashida et al. and Dunk are combinable because they are both interested with a similar technical concern, namely, paper quality. At the time of invention a person of ordinary skill in the art would have found it obvious to have used paper made of natural fibers/pulp, as taught by Ashida et al., in the process of Dunk, and would have been motivated to do so because Ashida et al. suggests high quality base papers can be made from such natural pulp/fibers.

Regarding claim 21: Dunk teaches three layers, with a LDPE layer below both EVA and PC layers (example 2). Dunk further teaches that LDPE has a density range of 0.910 to 0.940 g/cm³ (3:14-19).

Regarding claim 24: Dunk teaches three layers, a LDPE layer, an EVA layer, and PC layers (example 2).

Regarding claim 25: Dunk teaches upper layers having thin thickness or low weight per square meter in relation to the lowermost layer of LLDPE (See Table I) which is generally 90% or more of the entire coating thickness. Dunk further teaches that LDPE has a density range of 0.910 to 0.940 g/cm³ (3:14-20).

Regarding claim 26: Dunk teaches upper or second layer materials comprising HDPE (3:40-52 and Table I, sample 2). Dunk further teaches that HDPE has a density greater than 0.940 g/cm³ (3:14-20).

Regarding claims 27 and 28: Dunk does not teach broad-leaved tree fibers having fiber lengths in the range of 0.3 to 0.8 mm. However, Ashida et al. teaches hardwood pulp having fiber lengths in the range of 0.4 to 0.75 mm (18:28-44). Judicial notice is taken by the examiner, that "hardwood" is well known in the art as generally having 'broad leaves' and not needles. Ashida et al. and Dunk are combinable because they are both interested with a similar technical concern, namely, paper quality. At the time of invention a person of ordinary skill in the art would have found it obvious to have used broad-leaved tree or hardwood fibers having fiber lengths in the range of 0.4 to 0.75 mm, as taught by Ashida et al., in the process of Dunk, and would have been motivated to do so because Ashida et al. suggests high quality base papers can be made from such natural fibers.

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Regarding claim 23: Dunk teaches coating the paper surface opposite of the multi-layer structure (ie. the wire side) with polyethylene, namely a blend of HDPE and LDPE (example 2).

Claims 22 and 23 are rejected under 35 USC 103(a) as being unpatentable over Dunk (US Pat. 5,290,672) in view of Ashida et al. (US Pat. 5,824,462) as set forth above regarding claims 20, 21, and 24-29 and further in view of Arrington (US Pat. 5,633,041) when taken with Arrington (US Pat. 5,824,463).

Dunk teaches the basic claimed process as set forth above.

Regarding claim 22: Dunk does not teach the specific extrusion temperature of each layer. Nonetheless, Arrington '041 teaches that it is common practice to increase the melt temperature of the extrudate in order to increase the bond to the base paper (1:53-59). Dunk and Arrington '041 are combinable because they are from the same field of endeavor, namely forming coated paper. At the time of invention a person of ordinary skill in the art would have found it obvious to have used a high extrusion temperature to apply a first layer of polymer film onto a base paper, as taught by Arrington '041, in the process of Dunk, and would have been motivated to do so because Arrington '463 suggests that production speed is limited by such bond strength (1:19-29). It is submitted that high production speed are desired in the extrusion art to maximize profitability.

Dunk does not teach the specific extrusion temperature of each layer. Nonetheless, Ashida et al. teaches that gel formation in the extrudate can be reduced by using a lower melt temperature (4:6-10). Ashida et al. further teaches that gel formation is not just dependent upon temperature but also shear stress (7:12-58). Since viscosity is proportional to melt temperature, it follows that lowering the viscosity (ie. lowering the melt temperature) (7:30-35) will increase the stress at a given shear rate in the extruder and die. Dunk and Ashida et al. are combinable because they are from the same field of endeavor, namely forming coated paper. At the time of invention a person of ordinary skill in the art would have found it obvious to have used lower extrusion temperature to apply a second layer of polymer film onto a base paper, as taught by Ashida et al., in the process of Dunk, and would have been motivated to do so because Dunk suggests that gel reduction is desired so as to prevent faults in a later applied photographic emulsion (1:65-2:5).

Regarding claim 23: Dunk does not teach a specific line speed or production rate. However, Ashida et al. teaches production rates of over 150 m/min. (4:5-25). Arrington '463 teaches that rate of 61-305 m/min and even over 400 m/min are known in the art (1:19-

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2:10). Either of the teaches of Ashida et al. or Arrington '463 would have been combined with Dunk for the same reasons as set forth above, in order to increase profitability by using high speed production.

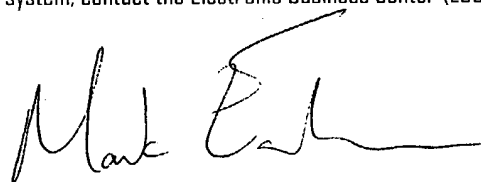
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bourdelais et al., Dethlefs, Kasai et al. '885 and '431 all teach the basic state of the art. Tsubaki et al. is the patent of the parent application.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Eashoo, Ph.D. whose telephone number is (571) 272-1197. The examiner can normally be reached on 7am-3pm EST, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mark Eashoo, Ph.D.
Primary Examiner
Art Unit 1732

2/9/04
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